-48-WHAT IS CLAIMED IS: A human keratinocyte growth factor (KGF) having apparent molecular weight of about 28 determined by migration in NaDodSO4/PAGE, and a specific activity of at least about 3.4 x 10 units per milligram of protein, where one unit of activity is defined as that amount which causes half of the maximal stimulation of DNA synthesis in BALB/MK keratinocyte cells under standard assay conditions. Human KGF according to claim 1, wherein said specific activity is at least about  $3.2 \times 10^5$  units per milligram protein. A bioassay for KGF-like activity in a test sample which comprises the following steps: growing keratinocytes in culture i) confluence and maintaining said confluent culture in serum-free medium; adding a test sample to said confluent ii) culture of keratinocytes; and iii) determining the stimulation DNA synthesis in said keratinocytes. A method of producing KGF from cultured cells comprising the following steps: Culturing KGF-producing cells in culture i) medium under conditions such that KGF is produced: ii) concentrating said culture medium so that a first concentrate is formed; contacting said concentrate with heparin iii) under conditions such that KGF present in said first concentrate binds to the heparin whereby a heparin-KGF complex is formed:

- iv) separating said heparin-KGF complex from said concentrate;
- v) treating said heparin-KGF complex under conditions such that said KGF dissociates from the heparin so that a solution of free KGF is formed;
- vi) concentrating said solution so that a second concentrate is formed;
- vii) fractionating said second concentrate so that KGF is separated from the remaining components.
- 5. A method of producing KGF from cultured cells, according to claim 4, wherein said KGF-producing cells are M426 human embryonic fibroblasts.
- 6. A DNA segment encoding a human keratinocyte growth factor (KGF) protein.
- 7. A DNA segment, according to claim 6, wherein said protein has the amino acid sequence defined in Figure II-1.
- 8. A DNA segment encoding a chimeric KGF-like protein which comprises within a single polypeptide molecule functional segments of human KGF and at least one other polypeptide of the fibroblast growth factor family.
- 9. A recombinant DNA molecule comprising a DNA segment according to claim 6 or claim 8 and a vector.
- 10. A culture of cells transformed with said recombinant DNA molecule according to claim 9.
- 11. A method of producing a human KGF protein comprising culturing said cells according to claim 10 in a culture medium under conditions such that said protein is produced and isolating said protein from said cells.

- 12. A method of producing a human KGF protein comprising culture said cells according to claim 10 in a culture medium, wherein said protein is secreted from said cell, and isolating said protein from said medium.
- 13. A human KGF or KGF-like protein having the amino acid sequence in Figure II-1B.
- 14. A human KGF or KGF-like protein, according to claim 13, which is not glycosylated.
- 15. An antibody specific for a peptide having the amino acid sequence of human KGF or KGF-like protein, according to claim 13.
- 16. The antibody according to claim 15 which neutralizes the mitogenic activity of human KGF.
- 17. A bioassay for expression of a gene encoding KGF, comprising the steps of:
  - i) isolating mRNA from tissues or cells;and
    - ii) annealing said RNA to a DNA probe encoding
      a human KGF;
    - iii) determining the amount of DNA:RNA hybrid containing said DNA probe.
- 18. A bioassay for KGF antigen comprising the steps of:
  - extracting polypeptides from body fluids or tissue samples;

and

determining the level of human KGF antigen by reaction with an antibody specific for a peptide having the amino acid sequence of human KGF or KGF-like protein, according to claim 13.

- 19. A pharmaceutical composition for treatment of conditions requiring specific stimulation of epithelial cells, comprising KGF according to claim 1 or claim 13, and an acceptable pharmaceutical carrier.
- 20. A pharmaceutical composition for treatment of conditions requiring specific inhibition of stimulation of epithelial cells by KGF, comprising antibodies to KGF according to claim 15, and an acceptable pharmaceutical carrier.